WM-F57

SERVICE MANUAL

US Model
E Model
ET Model

SPECIFICATIONS

Similar Mechanism Type	WM-55

Radio section

Frequency range FM: 87.6–108 MHz
AM: 530–1,605 kHz

Antenna FM: Earphone cord antenna
AM: Built-in ferrite bar antenna

Tape player section and general

Tape track 4-track 2-channel stereo

Fast winding time
Approx. 2 min. 30 sec. with Sony C-60 cassette

Frequency response (DOLBY NR OFF)
40–15,000 Hz (with the TAPE SELECT switch set to CrO_2/METAL)
40–15,000 Hz (with the TAPE SELECT switch set to NORM)

Speaker Approx. 3.6 cm ($1\frac{7}{16}$ inches) dia.

Power output Headphones: 10 mW + 10 mW (18 ohms at 10% harmonic distortion)
Speaker: 250 mW (8 ohms)

Power requirements
3 V DC
Two IEC designation R6 (size AA) batteries
External batteries (used in the optional Sony EBP-500 battery case): two IEC designation R20 (size D) batteries
DC IN 3 V jack accepts:
Sony AC-D2 AC power adaptor (optional) for use on 110, 120 or 220 V AC, 50/60 Hz
Sony DCC-70 car battery cord (optional) for use with 12 V car battery

Battery life (hours)

Batteries	FM reception Earphones	Tape playback	
		Earphones	Speaker
Sony SUM-3(NS) New Super	Approx. 16	Approx. 4.5	Approx. 4
Sony AM3 alkaline	Approx. 28	Approx. 8	Approx. 8

For maximum performance we recommend the use of alkaline batteries.

Dimensions Approx. 114 × 85.5 × 36.4 mm (w/h/d)
($4\frac{1}{2} \times 3\frac{3}{8} \times 1\frac{7}{16}$ inches)
incl. projecting parts and controls
Approx. 111 × 81 × 32.5 mm (w/h/d)
($4\frac{3}{8} \times 3\frac{1}{4} \times 1\frac{5}{16}$ inches)
not incl. projecting parts and controls

Weight Approx. 300 g (10.6 oz) incl. batteries, not incl. other accessories

FEATURES

- Auto-reverse function changes the tape playback direction without turning the cassette over.
- Sound can be heard through the speaker as well as through the earphones.
- Dolby* NR system reduces tape hiss noise during playback.

(E model)

* "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

FM/AM STEREO CASSETTE PLAYER

SONY®

TC

MICROFILM

SERVICING NOTES

• Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

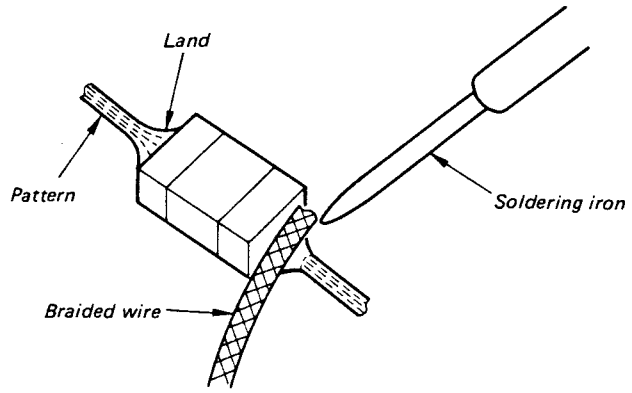
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ Removing chip components

(1) Removing solder at electrode

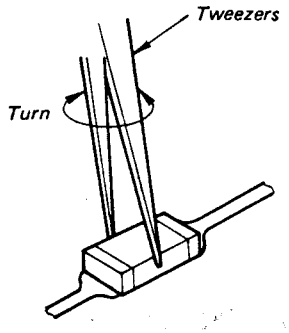
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.

Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

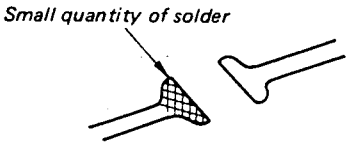
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

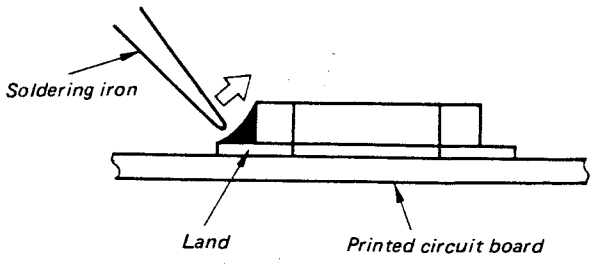
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



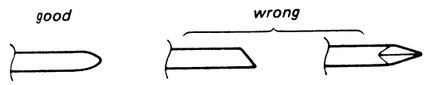
(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

• Flexible Circuit Board Repairing

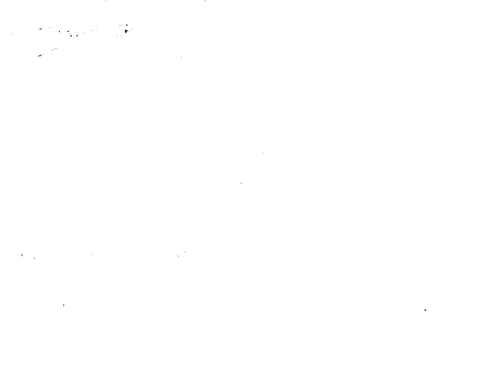
1. Keep the temperature of the soldering iron at 270° ± 10°C during repairing.
   You can maintain the temperature of the soldering iron around 270°C by using the thermal controller as illustrated on the right.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

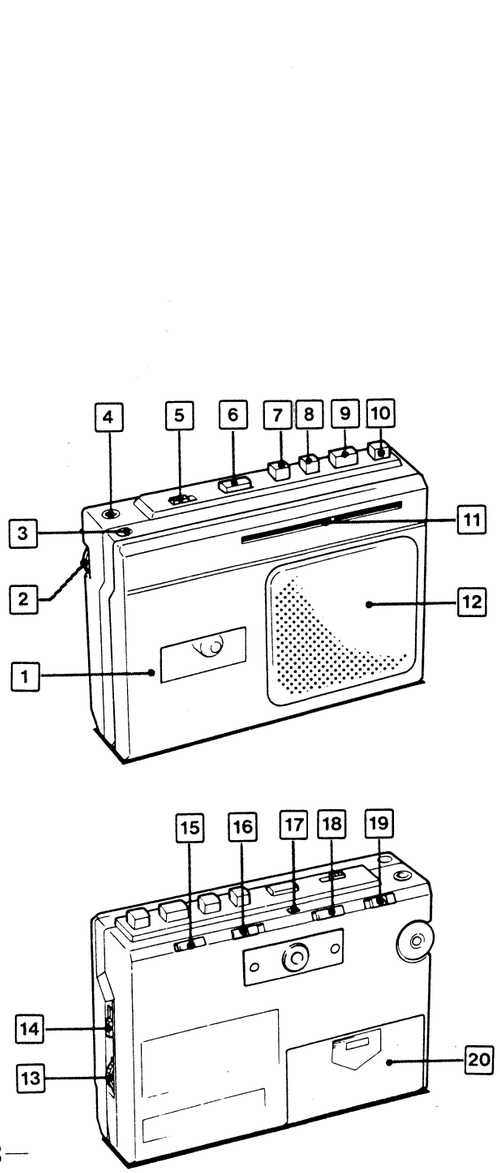
Tip of soldering iron



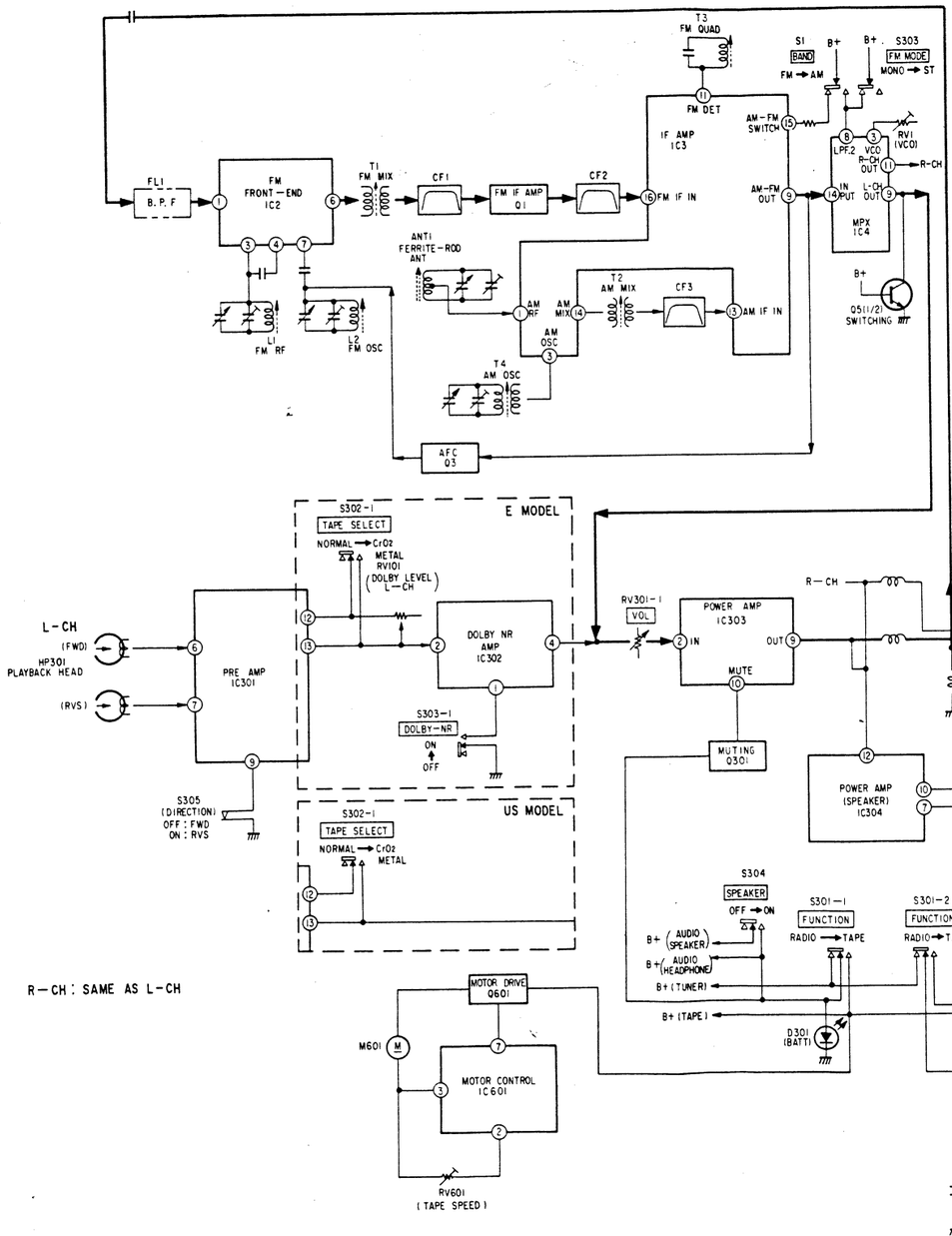
PARTS IDENTIFICATION

- [1] Cassette holder
- [2] VOL (volume) control
- [3] DC IN 3V (external power input) jack
- [4] PHONES (headphones) jack (stereo minijack)
- [5] DIRECTION MODE selector
- [6] ◀I▶ DIRECTION (tape transport direction change) button
- [7] ◀◀ (fast winding) button
- [8] ▶▶ (fast winding) button
- [9] ◀ PLAY (playback) button
- [10] ■ STOP button
- [11] Dial scale and dial pointer
- [12] Speaker
- [13] TUNING knob
- [14] BAND selector
- [15] SPEAKER switch
- [16] E model: DOLBY NR/FM MODE selector
  US model: FM SENS (sensitivity) switch
- [17] BATT (battery) indicator
- [18] TAPE SELECT switch
- [19] FUNCTION selector
- [20] Battery compartment





SECTION 1
BLOCK DIAGRAM

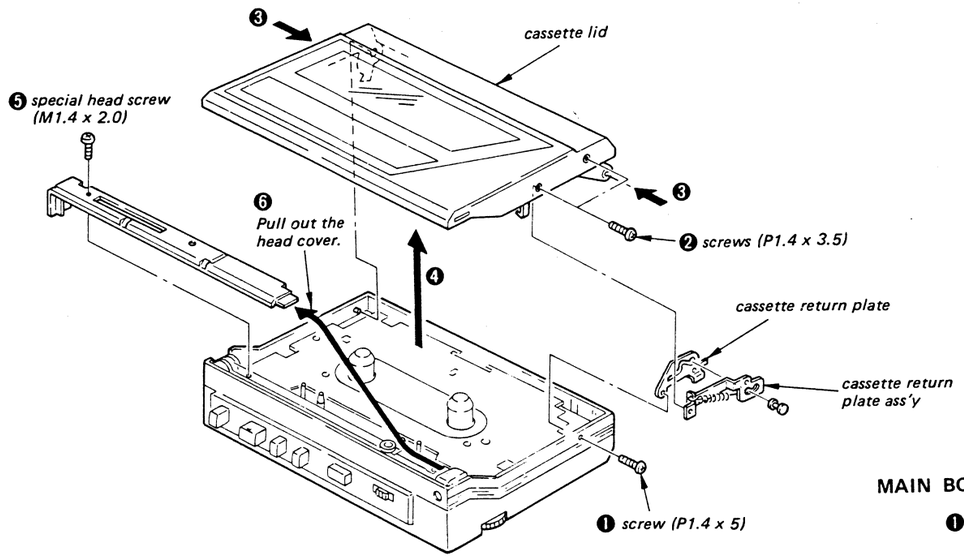


SECTION 2
DISASSEMBLY

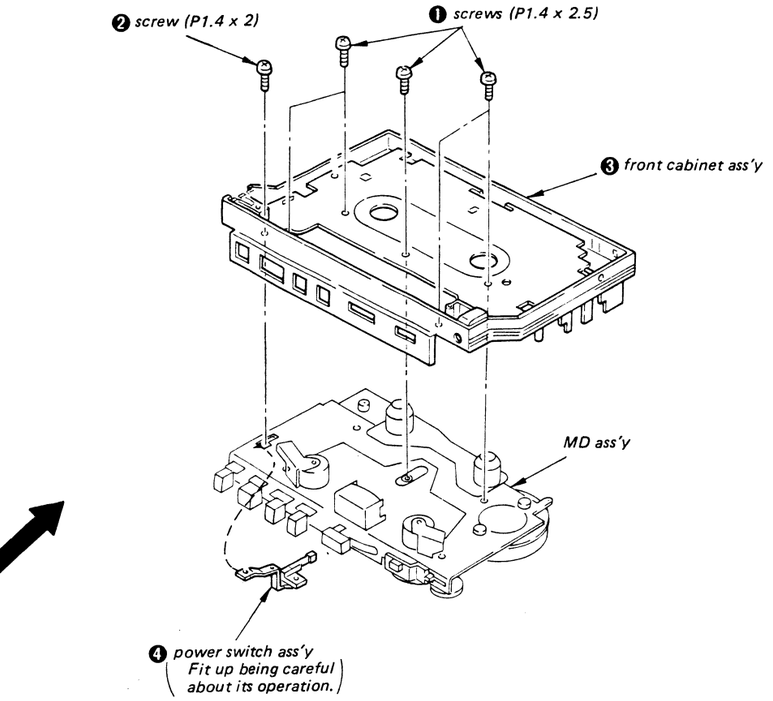
Note: Follow the disassembly procedure in the numerical order given.

2-1. REMOVAL

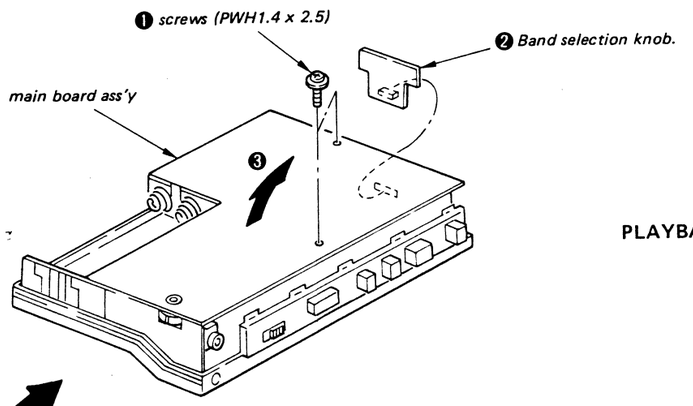
CASSETTE LID



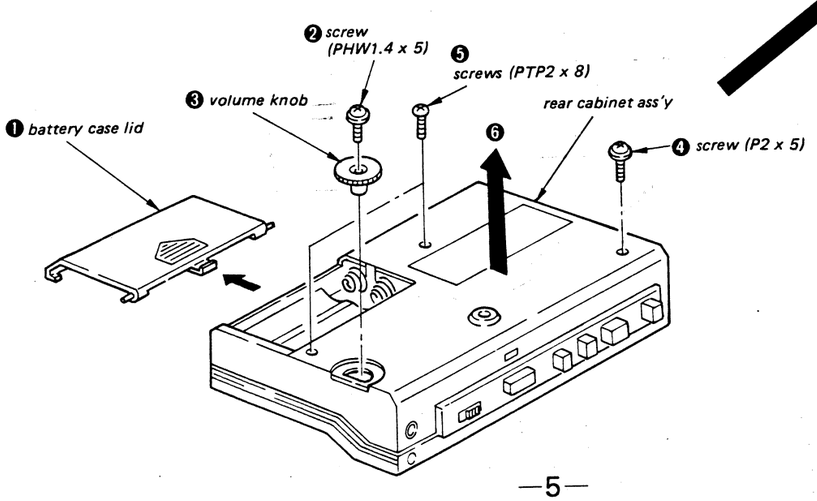
MD ASSEMBLY



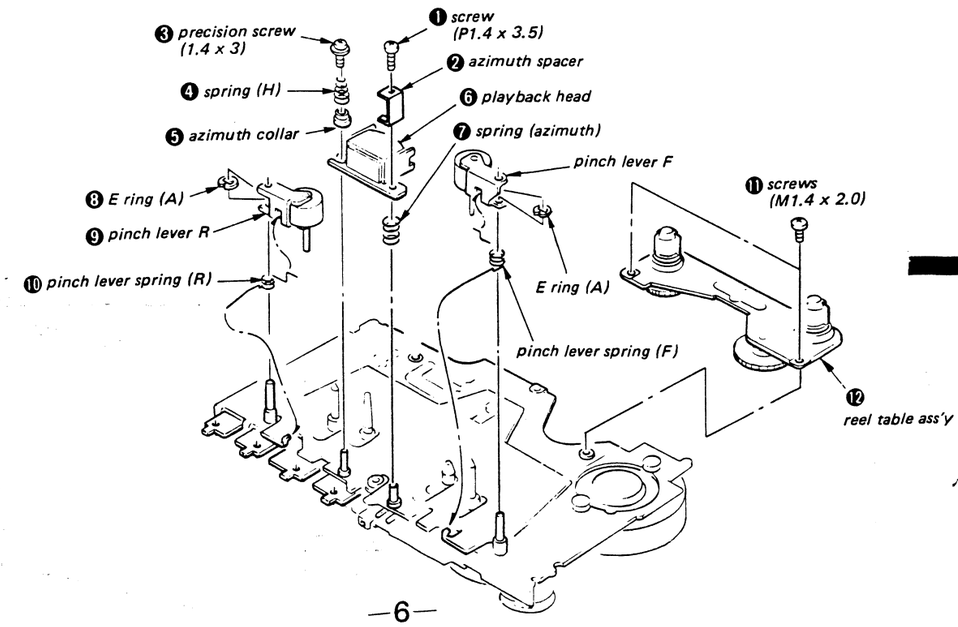
MAIN BOARD ASSEMBLY REMOVAL



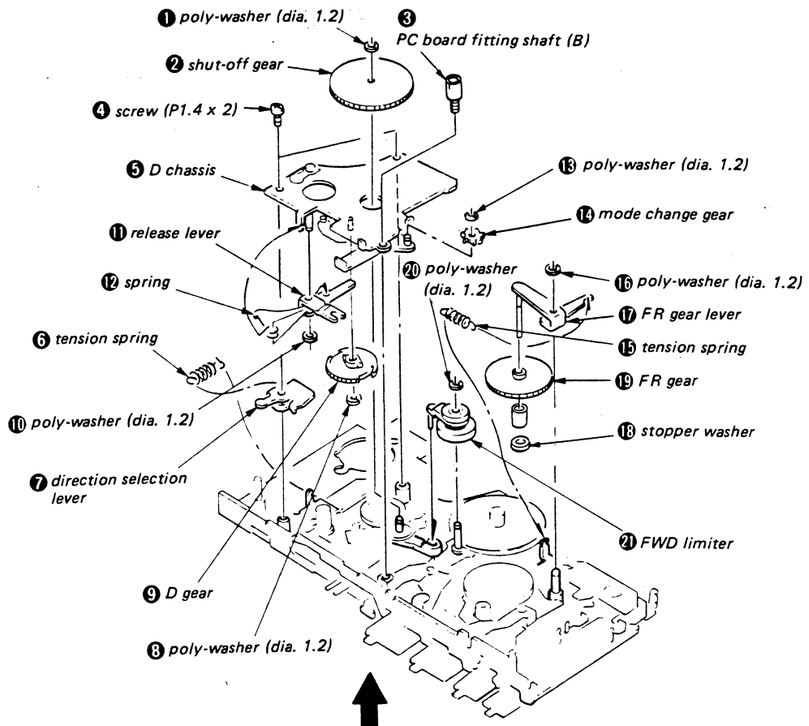
REAR CABINET ASSEMBLY



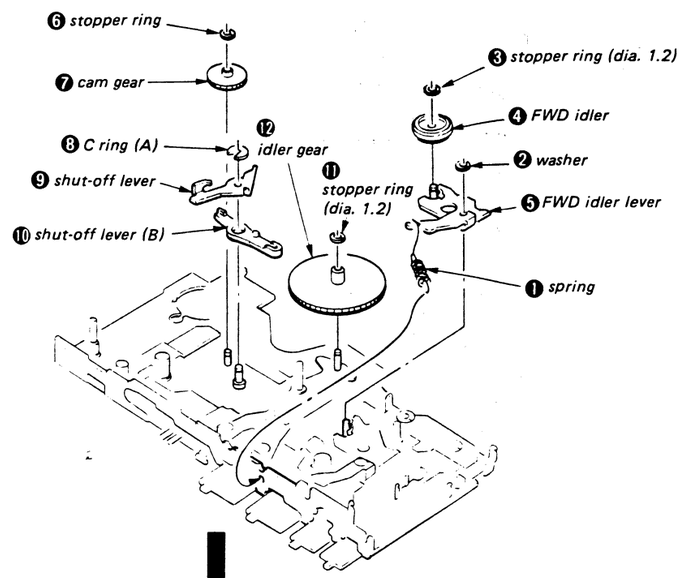
PLAYBACK HEAD, PINCH LEVER



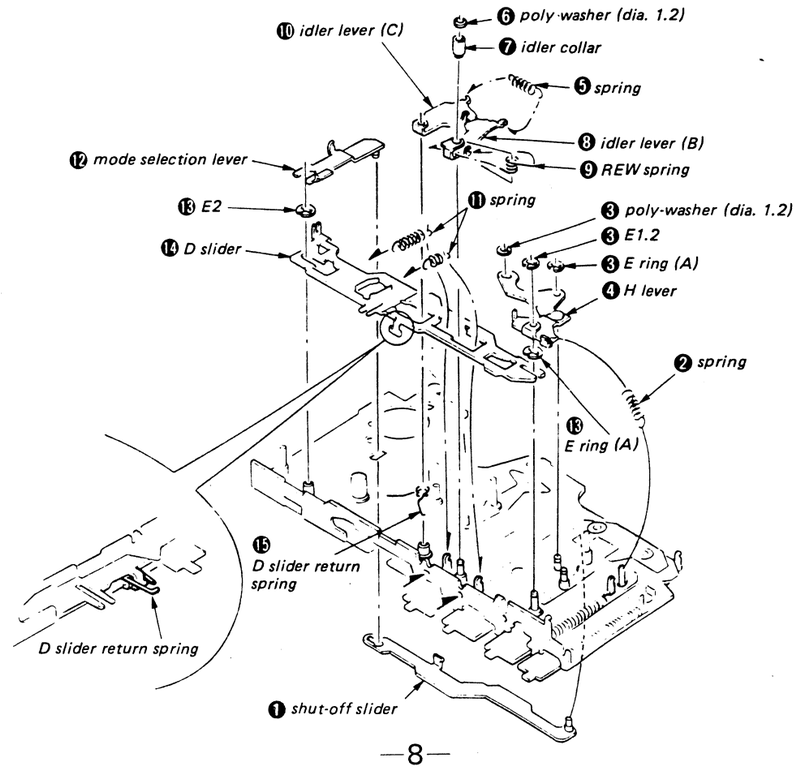
FWD LIMITER, FR GEAR LEVER, DIRECTION SELECTION LEVER, D CHASSIS, SHUT-OFF GEAR



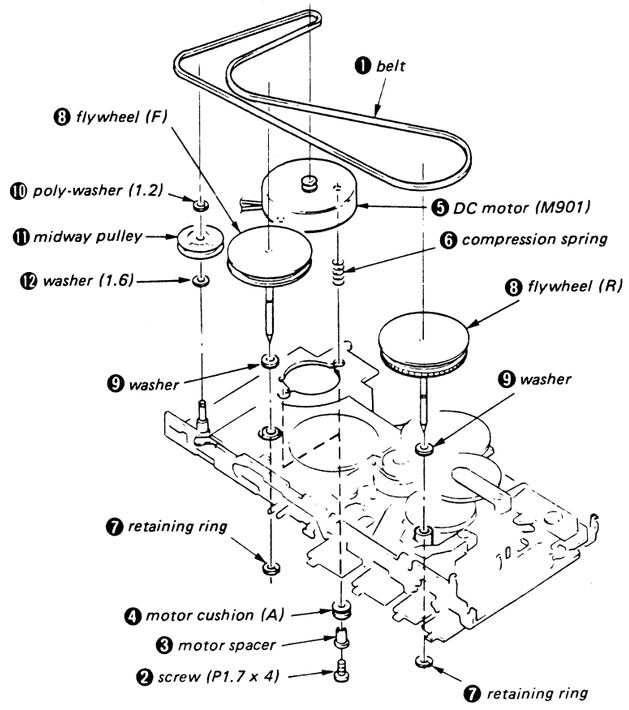
IDLER GEAR, SHUT-OFF LEVER, CAM GEAR, FWD IDLER



D SLIDER, MODE SELECTION LEVER, IDLER LEVER, H LEVER, SHUT-OFF SLIDER



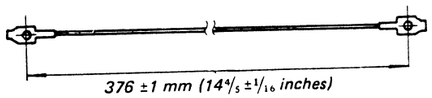
DC MOTOR, FLYWHEEL, MIDWAY PULLEY, BELT



2-2. DIAL CORD STRINGING

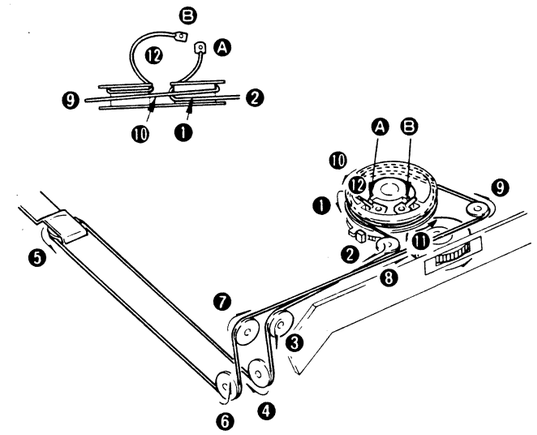
1. Preparation

Prepare the dial cord (ϕ0.3 mm = ϕ1/27 inches) as shown in the figure.



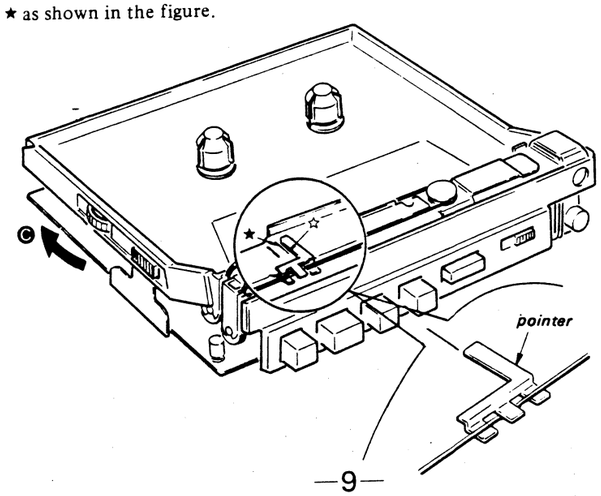
2. Dial Cord Stringing

1) Turn the dial drum fully counterclockwise.
2) Hook the fixed bracket to position Ⓐ of the dial drum.
3) String the dial cord in the numerical order given.
4) Hook the fixed bracket to position Ⓑ of the dial drum.



3. Dial Pointer Setting

1) Turn the tuning knob fully in the direction of the arrow Ⓒ.
2) Set the pointer ☆ for ★ as shown in the figure.



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL MEASUREMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

playback head	pinch roller
capstan	rubber belts

2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (2.5V) unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102D	23 – 50 g-cm (0.32 – 0.69 oz-inch)
FWD Back Tension		less than 5 g-cm (less than 0.07 oz-inch)
REV	CQ-102RC	23 – 50 g-cm (0.32 – 0.69 oz-inch)
REV Back Tension		less than 5 g-cm (less than 0.07 oz-inch)
FF, REW	CQ-201B	more than 60 g-cm (more than 0.83 oz-inch)

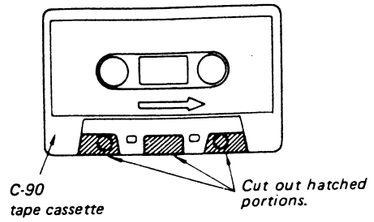
Tape Tension Measurement

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 60 g (more than 2.12 oz)
REV	CQ-403R	

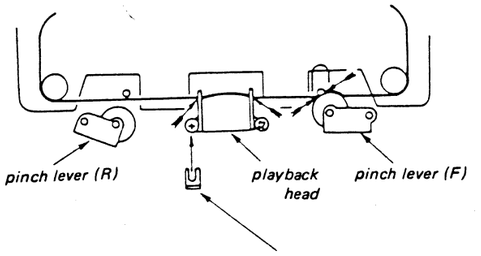
Tape Path Adjustment

Procedure:

1. Prepare an adjustment cassette as shown below.



2. Make the cassette in FWD and REV mode. Adjust the head heights with the head height adjustment shims and the tape guide height adjustment washers to eliminate tape curl and tape twist at the portions shown by arrow.



Part No.	t
3-316-457-01	0.1
3-316-457-11	0.15
3-316-457-21	0.2

3-2. ELECTRICAL ADJUSTMENTS

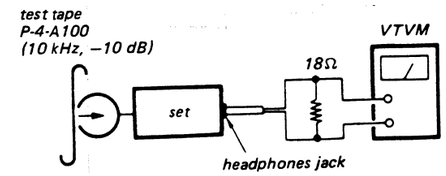
CASSETTE SECTION

Playback Head Azimuth Adjustment

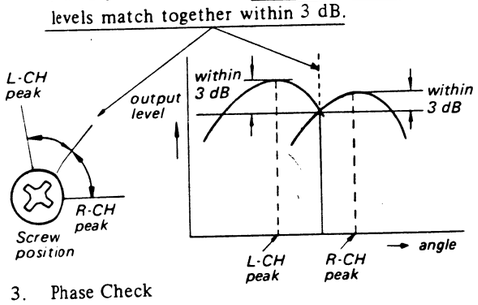
• Perform this adjustment both in FWD and REV mode.

Procedure:

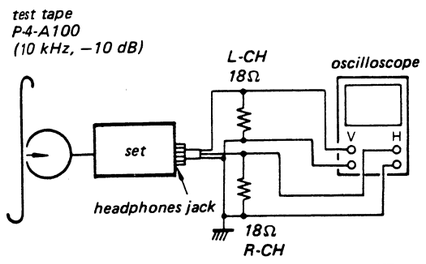
1. Mode: playback

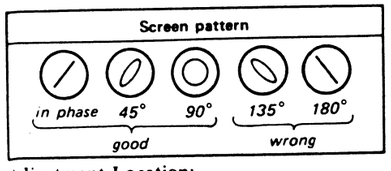


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3 dB.

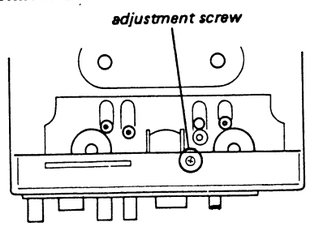


3. Phase Check
   Mode: playback





Adjustment Location:



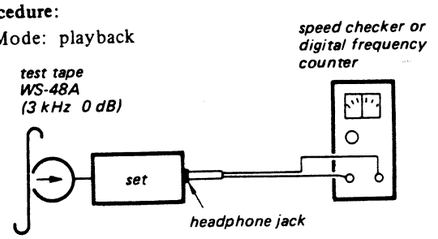
Tape Speed Adjustment

Setting:

VOL control: mechanical mid

Procedure:

Mode: playback



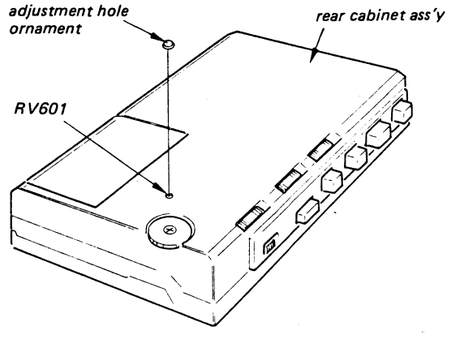
1. Play back the end of the tape in FWD mode and adjust RV601 for the specification.
2. Reverse the tape and confirm that the frequency difference between the beginning of the tape in FWD mode and the end of the tape in REV mode is within ±2.5% (±75 Hz).
3. Reverse the tape again, confirm that the frequency difference between the end of the tape in FWD mode and the beginning of the tape in REV mode is within ±2.5% (±75 Hz). If it is not, replace flywheel R.

marking on flywheel R	no slit	one slit	two slits
the tape speed of the beginning of the tape in REV mode against that of the end of the tape in FWD mode	no slit	one slit	two slits
	slow ⟷ fast		

Specification:

Speed checker	Digital frequency counter
±1%	2,970 – 3,030 Hz

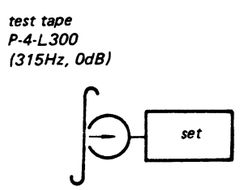
Adjustment Location:



Dolby NR Level Adjustment (E Model)

Procedure:

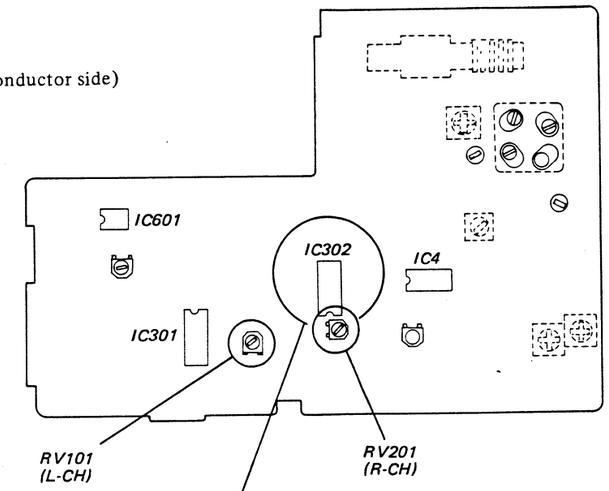
TAPE switch: NORM
DOLBY NR switch: OFF

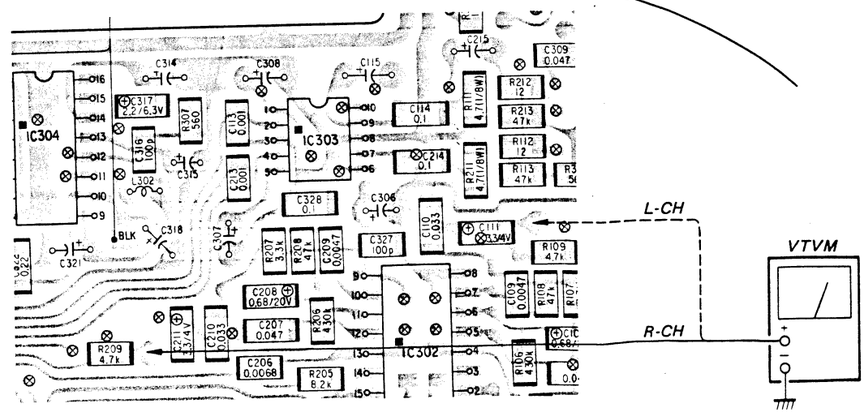


1. Adjust RV101 (L-CH), RV201 (R-CH) so that VTVM reading is satisfied with the specification.
2. Turn DOLBY NR switch (S301) on and confirm that the VTVM reading is satisfied with the specification.

Specification: −20.5 ±1 dB
(73 ±4 mV)

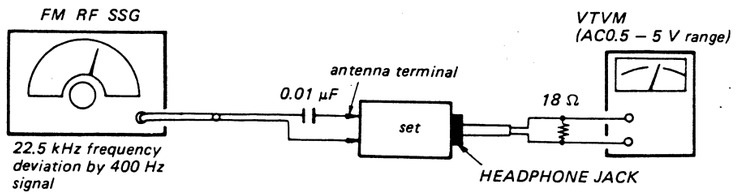
Adjustment Location: main board (conductor side)





RADIO SECTION

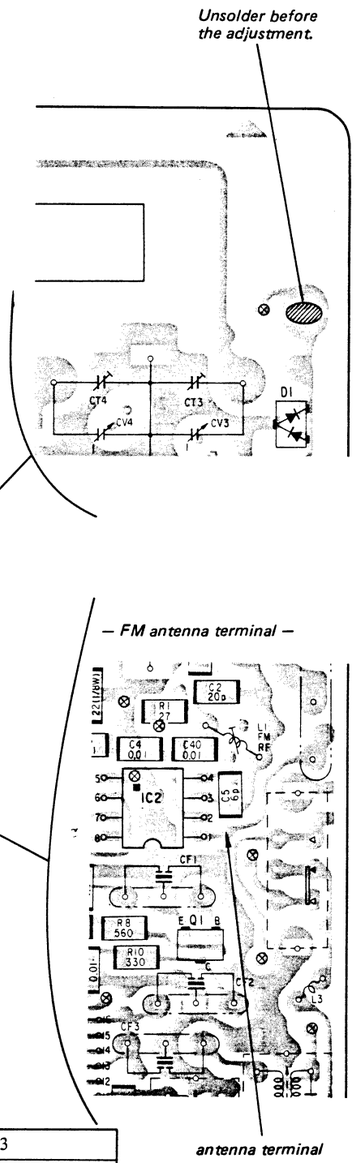
• FM SECTION



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.
- After the adjustment, solder the antenna pattern bridge.

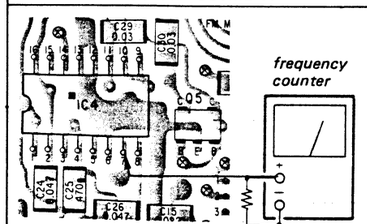
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
86.5 MHz	109.5 MHz
L2	CT2

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
109.5 MHz	86.5 MHz
CT1	L1

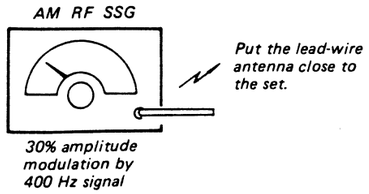


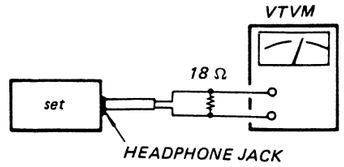
T3
Distorsion minimum.
FM IF ADJUSTMENT (2)

T1
Adjust for a maximum reading on VTVM.
FM IF ADJUSTMENT (1)

VCO ADJUSTMENT
 Adjust for a reading on 100 kΩ Frequency Counter.
38 ±0.2 kHz
RV1

• AM SECTION

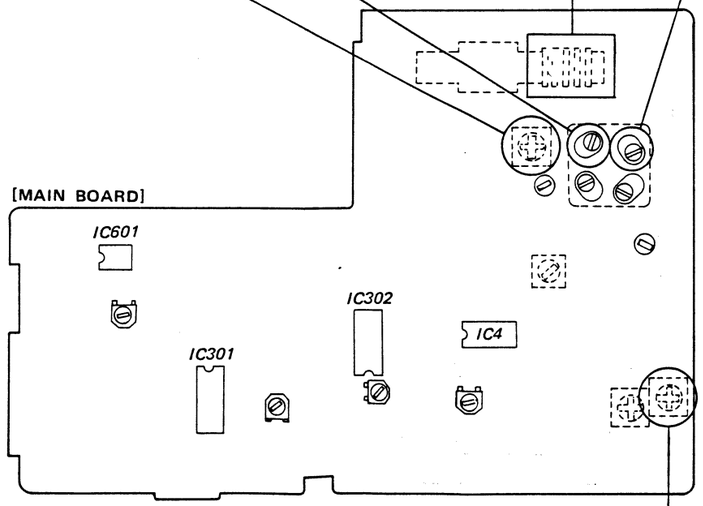




- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
520 kHz	1,680 kHz
T4	CT4

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
620 kHz	1,400 kHz
ANT1	CT3

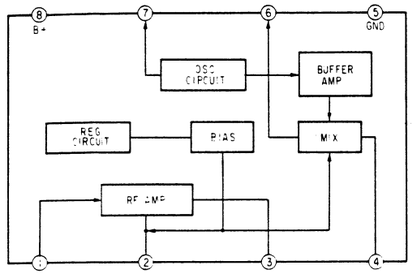


T2
455 kHz
Adjust for a maximum reading on VTVM.
AM IF ADJUSTMENT

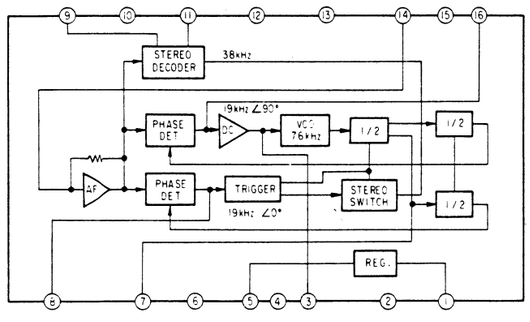
SECTION 4
DIAGRAMS

• IC Block Diagrams

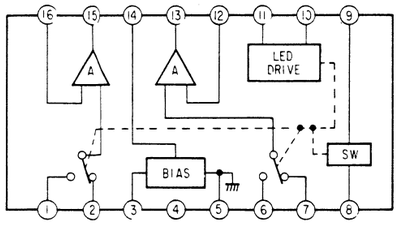
IC2 TA7358FN



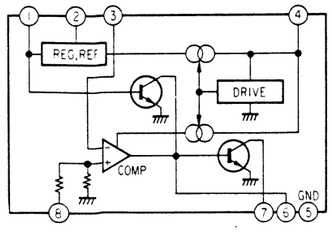
IC4 TA7370F



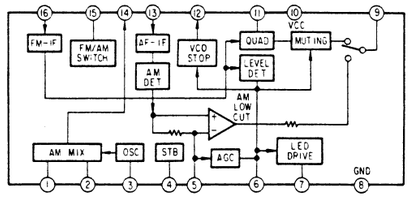
IC301 BA3404F



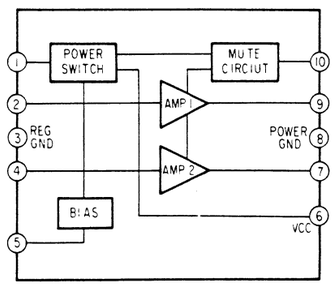
IC601 AN6612S



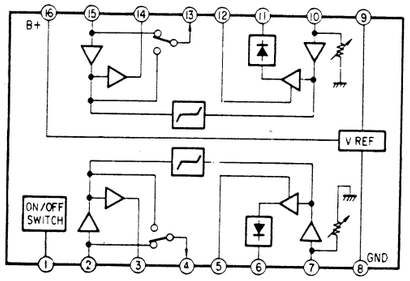
IC3 TA8110F



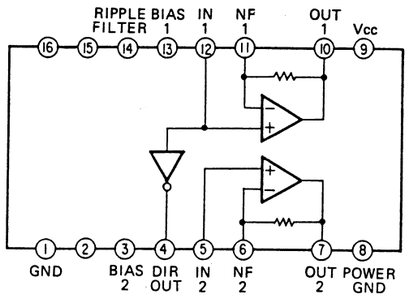
IC303 LA4533M



IC302 NJM2063AM



IC304 BA5208AF



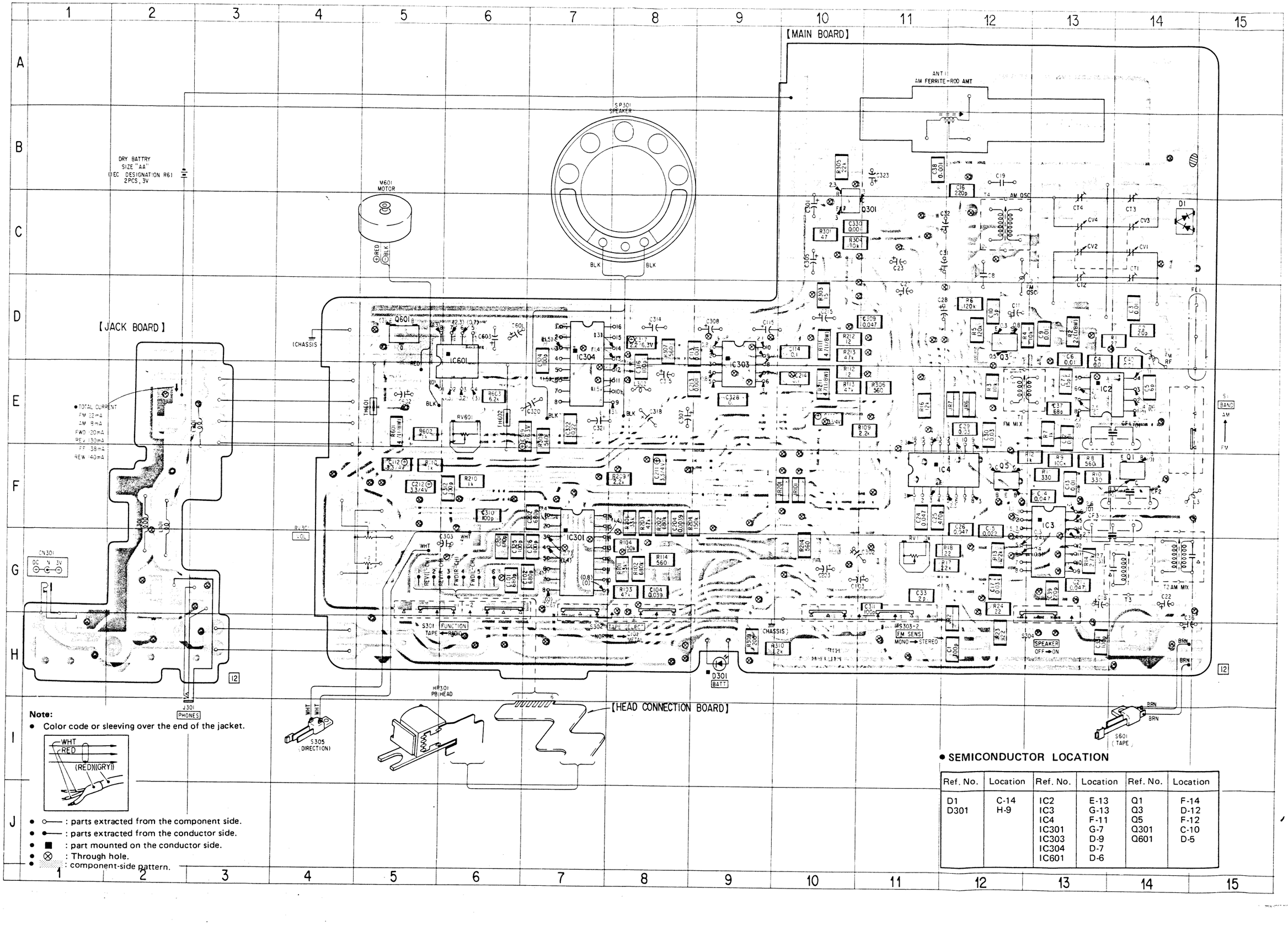
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/10 W or less unless otherwise specified.
- ▬▶ : signal path.
- △ : internal component.
- ▬ : B+ bus.
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
  no mark: FM MODE
  ( ): AM MODE
  < >: TAPE (FWD) MODE
  [ ]: TAPE (REV) MODE
  ≪ ≫: DOLBY ON MODE
  (( )): SPEAKER ON
- Power voltage is DC 3 V and fed with regulated dc power supply from DC IN 3 V jack.
  Voltages are dc with respect to ground in no signal mode.
  Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S1	BAND	FM
S301	FUNCTION	RADIO
S302	TAPE SELECT	NORM
S303-1	DOLBY NR	OFF
S303-2	FM SENS	MONO
S305	(DIRECTION)	OFF (FWD)
S601	(TAPE)	ON

4-1. MOUNTING DIAGRAM – US MODEL –

• See page 22 for Semiconductor Lead Layouts.



Note:

- Color code or sleeving over the end of the jacket.

- ○— : parts extracted from the component side.
- —● : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : component-side pattern.

• SEMICONDUCTOR LOCATION

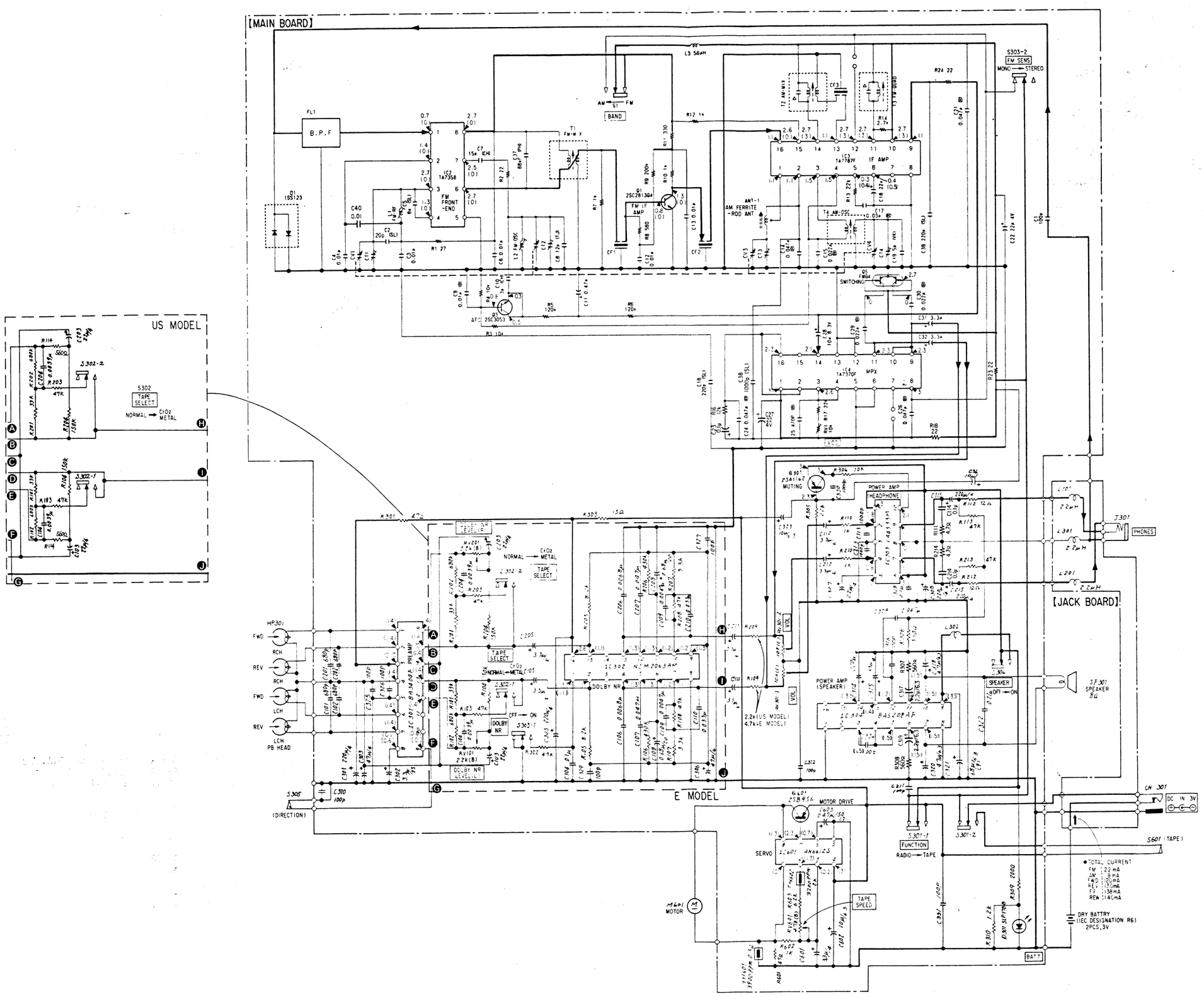
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	C-14	IC2	E-13	Q1	F-14
D301	H-9	IC3	G-13	Q3	D-12
		IC4	F-11	Q5	F-12
		IC301	G-7	Q301	C-10
		IC303	D-9	Q601	D-5
		IC304	D-7		
		IC601	D-6		

4-2. SCHEMATIC DIAGRAM

• See page 15, 16 for IC Block Diagrams and notes.

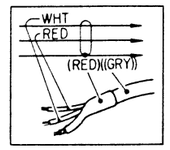
4-3. MOUNTING DIAGRAM – E MODEL –

• See page 22 for Semiconductor Lead Layouts.



Note:

- Color code or sleeving over the end of the jacket.



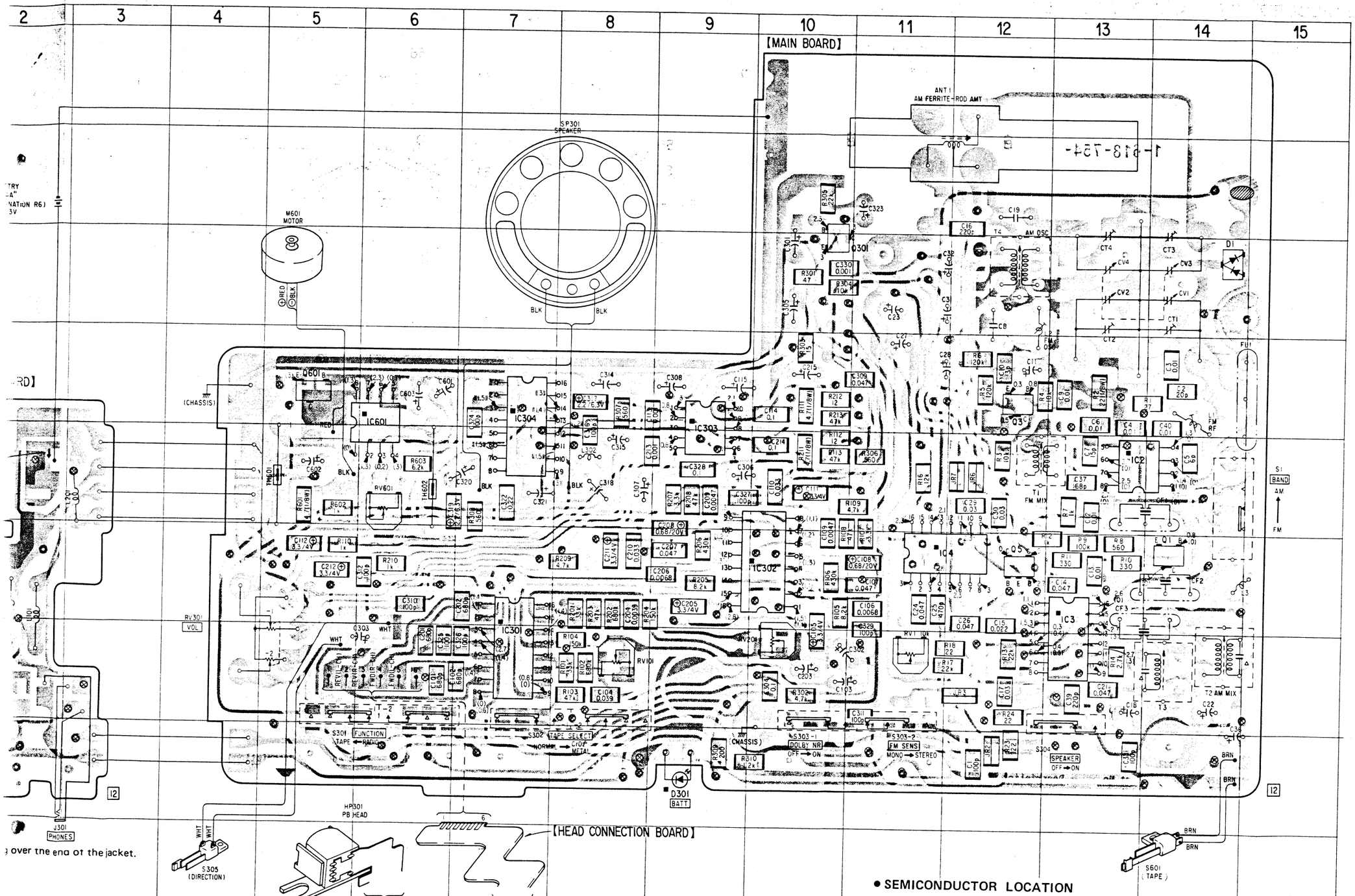
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.

E Model

WM-F57 WM-F57

E Model

【MAIN BOARD】



over the end of the jacket.

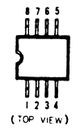
from the component side.
from the conductor side.
n the conductor side.

• SEMICONDUCTOR LOCATION

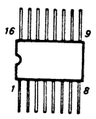
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	C-14	IC2	E-13	Q1	F-14
D301	H-9	IC3	G-13	Q3	D-12
		IC4	F-11	Q5	F-12
		IC301	G-7	Q301	C-10
		IC302	F-10	Q601	D-5
		IC303	D-9		
		IC304	D-7		
		IC601	D-6		

• Semiconductor Lead Layouts

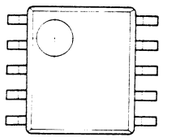
AN6612S
TA7358FN



BA3404F
BA5208AF
NJM2063AM
TA7370F
TA8110F

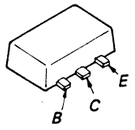


LA4533M

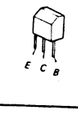


2SA1162Y
2SA812
2SC2813Q4
2SC3053

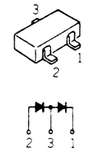
2SB956S



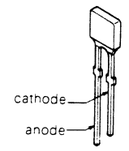
FMG4



1SS123



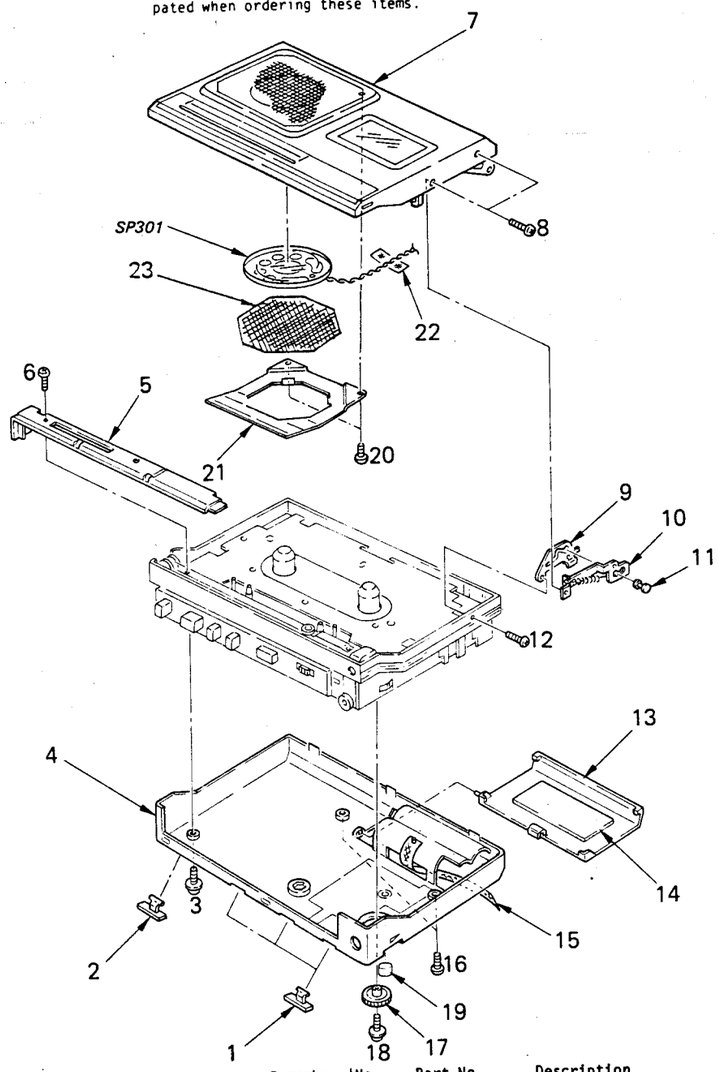
SLP178B



SECTION 5
EXPLODED VIEW AND PARTS LIST

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

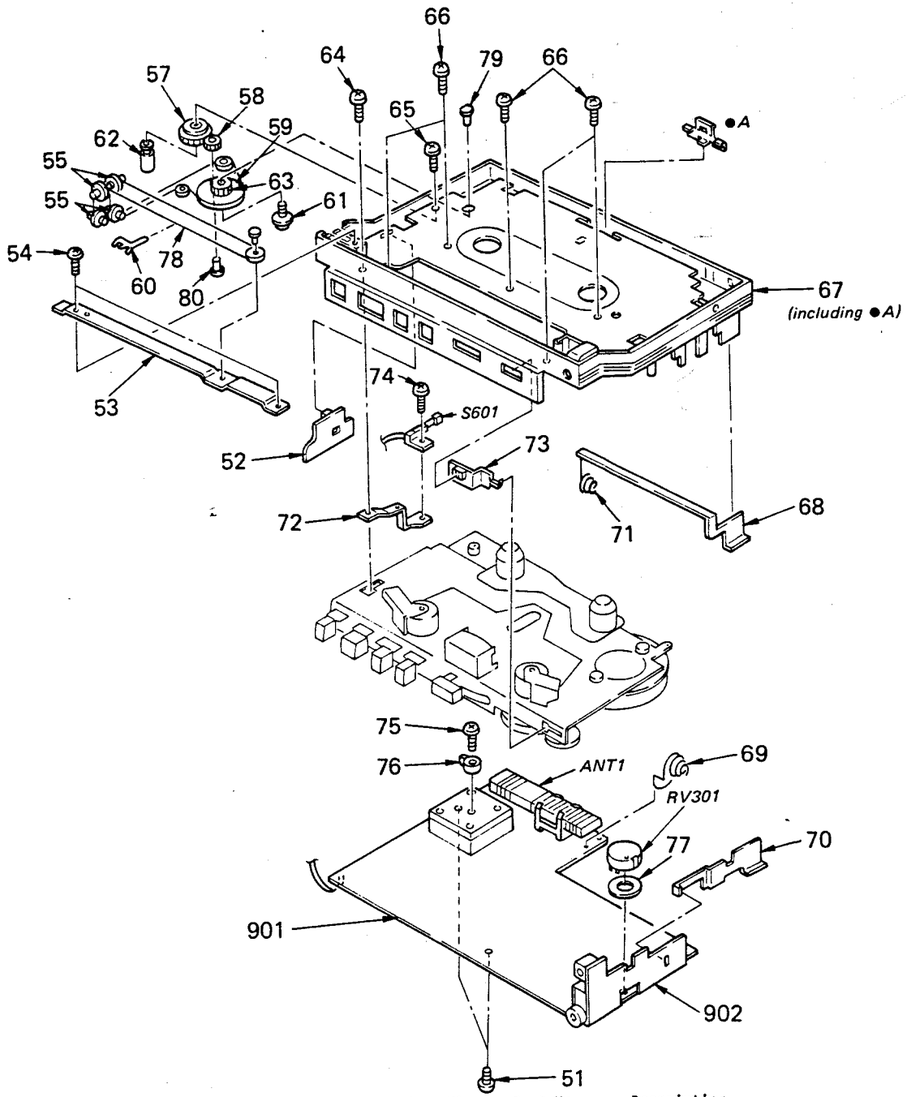
(1)



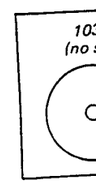
No.	Part No.	Description	Remarks
1	3-335-713-01	KNOB (A), SLIDE	
2	3-335-714-01	KNOB (B), SLIDE	
3	7-627-853-67	PRECISION SCREW +P 2X6 TYPE 3	
4	X-3335-813-1	(E:BLACK)...CABINET (REAR) ASSY (B)	
	X-3335-814-1	(E:WHITE)...CABINET (REAR) ASSY (W)	
	X-3335-816-1	(US).....CABINET (REAR) ASSY (B)	
5	3-335-715-01	COVER, HEAD	
6	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
7	X-3335-817-1	(E:BLACK)...CABINET (CASSETTE) ASSY (B)	
	X-3335-818-1	(E:WHITE)...CABINET (CASSETTE) ASSY (W)	
	X-3335-820-1	(US).....CABINET (CASSETTE) ASSY (B)	
8	7-627-850-58	SCREW, PRECISION +P 1.4X3.5	
9	*3-335-705-01	PLATE (B), RETURN, CASSETTE	
10	*X-3335-706-1	PLATE (A) ASSY, RETURN, CASSETTE	
11	3-325-218-01	SHAFT (B), FULCRUM	
12	7-627-850-88	+P 1.4X5	
13	3-335-735-01	(US,E:BALCK)...LID, BATTERY CASE	
	3-335-735-31	(E:WHITE).....LID, BATTERY CASE	
14	9-911-815-01	STOPPER	
15	9-911-816-01	RIBBON, BATTERY	
16	7-685-105-24	SCREW +P 2X8 TYPE2 SLIT	
17	3-335-733-01	KNOB, VOLUME	
18	3-703-502-72	SCREW	
19	3-335-726-01	(US,E:BALCK)...ORNAMENT, ADJUSTMENT HOLE	
	3-335-726-31	(E:WHITE).....ORNAMENT, ADJUSTMENT HOLE	
20	7-627-852-48	PRECISION SCREW +P1.7X3.5 TYPE3	
21	*3-335-810-01	BRACKET	
22	3-831-441-11	CUSHION (B)	
23	3-335-836-01	CLOTH, BLIND, SPEAKER	
SP301	1-503-283-21	SPEAKER, DYNAMIC	

(2)

(3)

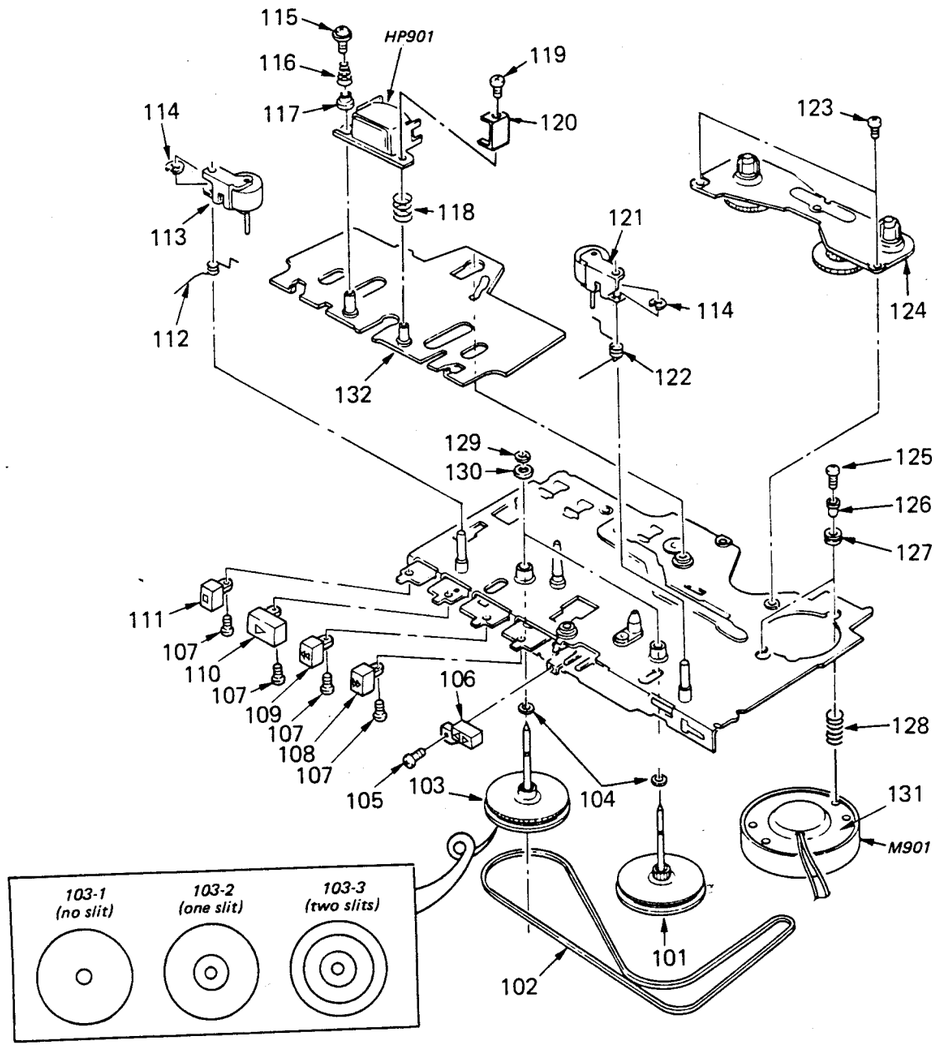


No.	Part No.	Description	Remarks
51	3-703-502-31	SCREW	
52	3-335-731-01	KNOB (B), BAND SELECTION	
53	*X-3335-707-1	PLATE ASSY, BACK	
54	3-703-454-00	SCREW, TAPPING	
55	3-335-716-01	PULLEY, SHAFT	
57	3-335-718-01	KNOB, DIAL	
58	3-335-776-01	GEAR, JOINT	
59	3-335-736-01	DRUM, DIAL	
60	*3-335-701-01	POINTER	
61	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
62	3-335-709-01	SHAFT, DIAL GUIDE	
63	3-335-777-01	GEAR, DRUM	
64	7-627-850-08	SCREW, PRECISION +P 1.4X2	
65	3-703-816-52	SCREW (M1.4X3.5), SPECIAL HEAD	
66	7-627-850-18	SCREW, PRECISION +P 1.4X2.5	
67	X-3335-808-1	CABINET (FRONT) ASSY	
68	3-335-703-01	TERMINAL BOARD (B), PLUS	
69	3-335-707-01	SPRING (A), MINUS	
70	3-335-702-01	TERMINAL BOARD (A), PLUS	
71	3-335-708-01	SPRING (B), MINUS	
72	*3-335-706-01	BRACKET, SWITCH	
73	3-335-734-01	KNOB, R.M	
74	7-627-553-28	SCREW, PRECISION +P 2X2.5	
75	7-627-552-37	SCREW, PRECISION +P 1.7X3	
76	3-335-717-01	BUSHING, DRUM	
77	3-330-442-01	SHEET, ADHESIVE, VOL	
78	9-911-825-52	SPRING	
79	3-335-774-01	SHAFT, DIAL DRUM	
80	3-335-775-01	SHAFT, JOINT GEAR	
901	A-3216-051-A	(US)....PC BOARD ASSY, MAIN	
	A-3216-053-A	(E).....PC BOARD ASSY, MAIN	
902	*1-618-755-11	PC BOARD, JACK	
ANT1	1-402-209-11	ANTENNA, FERRITE-ROD (MW)	
S601	1-570-642-11	SWITCH, LEAF (TAPE)	
RV301	1-230-533-11	RES, VAR, CARBON 10K/10K	



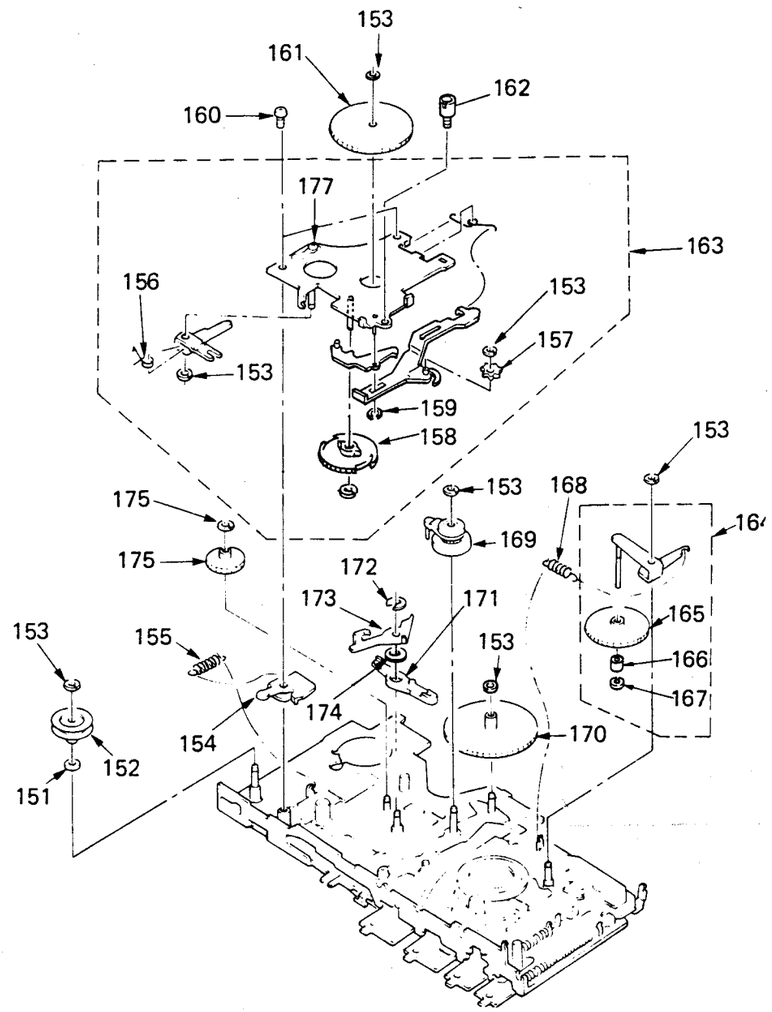
No.	Part No.	Description	Remarks
101	X-3325-206		
102	3-325-387-		
103-1	X-3335-708		
-2	X-3335-709		
-3	X-3335-710		
104	3-321-489-		
105	3-332-021-		
106	3-335-751-		
107	3-305-528-		
108	3-335-750		
109	3-335-749		
110	3-335-748		
111	3-335-747		
112	3-325-332		
113	X-3335-72		
114	3-590-768		
115	3-703-502		

(3)



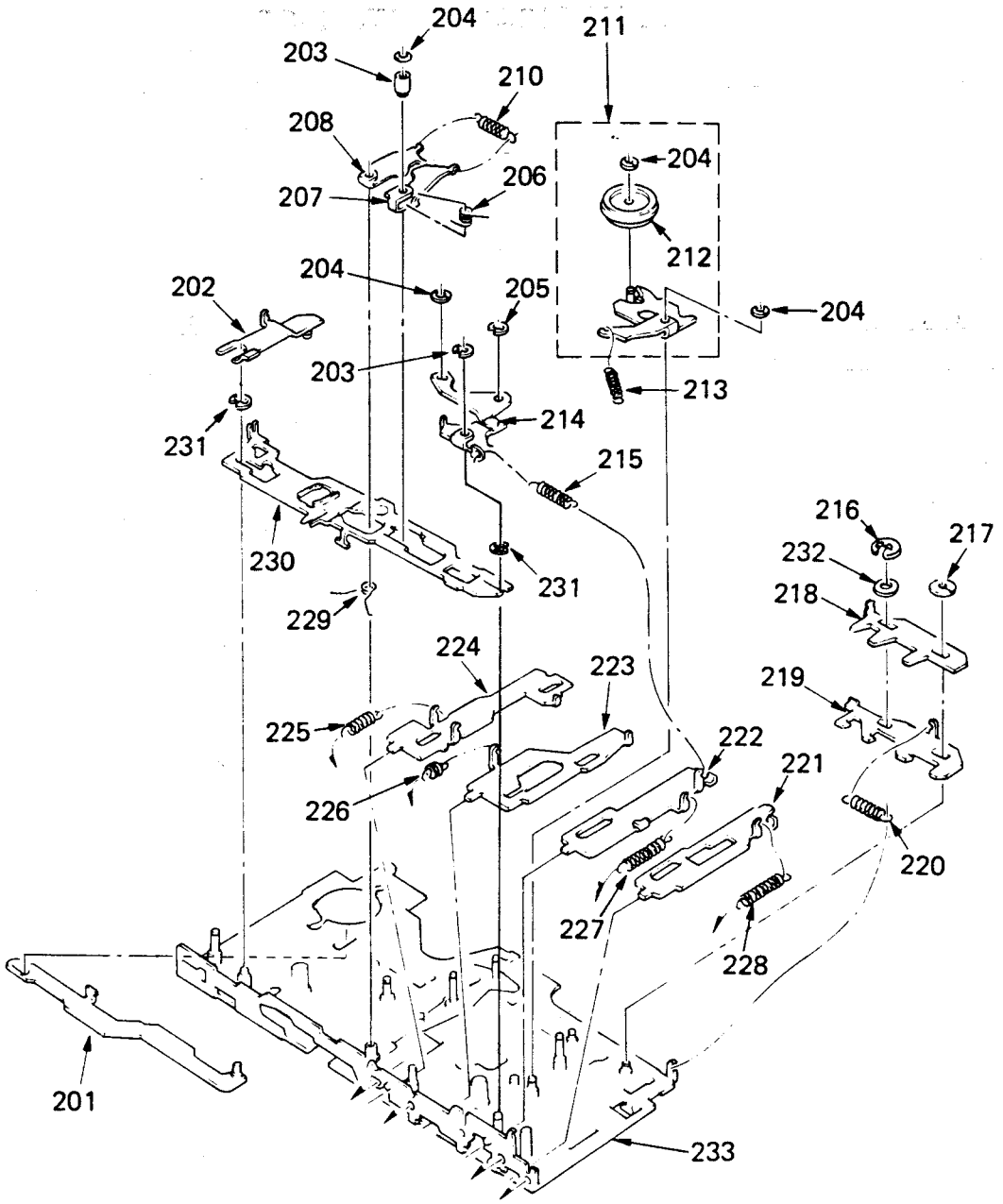
No.	Part No.	Description	Remarks
101	X-3325-206-1	FLYWHEEL (F) ASSY	
102	3-325-387-01	BELT	
103-1	X-3335-708-1	FLYWHEEL (R) ASSY	
-2	X-3335-709-1	FLYWHEEL (R) ASSY	
-3	X-3335-710-1	FLYWHEEL (R) ASSY	
104	3-321-489-01	WASHER	
105	3-332-021-21	SCREW (M1.4)	
106	3-335-751-01	BUTTON, DIRECTION	
107	3-305-528-11	SCREW, M1.4X2.5	
108	3-335-750-01	BUTTON, FF	
109	3-335-749-01	BUTTON, REW	
110	3-335-748-01	BUTTON, PLAY	
111	3-335-747-01	BUTTON, STOP	
112	3-325-332-01	SPRING (R)	
113	X-3335-726-1	PINCH LEVER (RIGHT) ASSY	
114	3-590-768-00	RING (A), E	
115	3-703-502-31	SCREW	
116	3-318-106-01	SPRING (H), COMPRESSION	
117	3-325-358-01	COLLAR, AZIMUTH	
118	3-325-380-01	SPRING, COMPRESSION (AZIMUTH)	
119	7-627-551-57	SCREW, PRECISION +P 1.4X3	
120	3-325-396-01	SPACER, AZIMUTH	
121	X-3335-725-1	PINCH LEVER (LEFT) ASSY	
122	3-325-331-01	SPRING (F)	
123	3-703-816-01	SCREW (M1.4X2.0), SPECIAL HEAD	
124	X-3326-503-1	TABLE ASSY, REEL	
125	7-627-552-48	SCREW, PRECISION +P 1.7X4	
126	3-325-385-01	SPACER, MOTOR	
127	3-570-770-00	CUSHION (A), MOTOR	
128	3-325-395-01	SPRING, COMPRESSION	
129	3-321-483-01	RING, RETAINING	
130	3-327-714-01	WASHER	
131	*3-335-786-01	CASE, SHIELD	
132	X-3324-930-1	CHASSIS ASSY, HEAD	
HP901	8-825-537-51	HEAD, PLAYBACK PP238-3604D	
M901	8-835-188-01	MOTOR, DC KFN-26DA3FX	

(4)



No.	Part No.	Description	Remarks
151	3-538-062-00	WASHER, POLYETHYLENE	
152	3-325-393-01	PULLEY, MIDWAY	
153	3-570-615-00	POLY-WASHER (DIA.1.2)	
154	3-324-993-01	LEVER, SELECTION, DERECTION	
155	3-325-351-01	SPRING, TENSION	
156	3-324-996-01	SPRING	
158	3-325-363-01	GEAR, D	
159	3-327-710-01	RING, RETAINING	
160	3-305-528-11	SCREW (M1.4X2)	
161	3-324-949-01	GEAR, SHUT-OFF	
162	3-335-744-01	SHAFT (C), FITTING, PC BOARD	
163	X-3326-121-1	PC BOARD COMPLETE ASSY, D	
164	X-3335-729-1	LEVER COMPLETE ASSY, FR GEAR	
165	3-324-947-01	GEAR, FR	
166	3-327-711-01	COLLAR (FR)	
167	3-318-136-01	WASHER, POLYETHYLENE, DIA. 1.2	
168	3-325-349-01	SPRING, TENSION	
169	X-3324-921-5	LIMITER ASSY, FWD	
170	3-325-324-01	GEAR, IDLER	
171	3-325-326-01	LEVER (B), SHUT-OFF	
172	3-325-386-01	RING (A), C	
173	3-325-357-01	LEVER, SHUT-OFF	
174	3-325-290-01	WASHER	
175	3-325-394-01	WASHER, STOPPER	
176	3-325-323-01	GEAR, CAM	
177	3-703-502-01	SCREW	
178	*3-335-742-01	LEVER, D.SW	

(5)



No.	Part No.	Description	Remarks
201	X-3324-923-1	SLIDER ASSY, SHUT-OFF	
202	X-3324-922-1	LEVER ASSY, MODE SELECTION	
203	3-578-254-00	RING, RETAINING, E1.2	
204	3-701-441-01	WASHER	
205	3-590-768-00	RING (A), E	
206	3-325-266-01	SPRING	
207	3-325-264-01	LEVER (B), IDLER	
208	3-325-265-01	LEVER (C), IDLER	
209	3-325-263-01	COLLAR (B), IDLER	
210	3-325-318-01	SPRING, TENSION	
211	X-3335-728-1	IDLER COMPLETE ASSY (A), FWD	
212	X-3335-727-1	IDLER ASSY (B), FWD	
213	3-570-552-00	SPRING, TENSION	
214	X-3324-926-1	LEVER ASSY, H	
215	3-325-288-01	SPRING (POWER TENSION),TENSION	
216	7-624-104-04	STOP RING 1.5, TYPE -E	
217	3-325-386-01	RING (A), C	
218	3-335-752-01	LEVER (F), SW	

No.	Part No.	Description	Remarks
219	3-325-311-01	PLATE (B), LOCK	
220	3-325-353-01	SPRING, TENSION	
221	3-325-397-01	LEVER (B), RA	
222	3-325-399-01	LEVER (B), FWD	
223	3-325-325-01	LEVER, REW	
224	3-325-365-01	LEVER, FF	
225	3-325-350-01	SPRING, TENSION (POWER TENSION)	
226	3-325-345-01	SPRING, TENSION (POWER TENSION)	
227	3-326-561-01	SPRING, TENSION (POWER TENSION)	
228	3-325-383-01	SPRING, TENSION (POWER TENSION)	
229	3-325-341-01	SPRING	
230	X-3324-924-1	SLIDER ASSY, D	
231	7-624-104-04	STOP RING 2.0, TYPE -E	
232	3-327-708-01	WASHER	
	3-327-708-11	WASHER	
	3-327-708-21	WASHER	
	3-327-708-31	WASHER	
233	*X-3335-724-1	CHASSIS ASSY, MECHANICAL	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	A-3216-051-A	(US)....PC BOARD ASSY, MAIN
	A-3216-053-A	(E).....PC BOARD ASSY, MAIN
902	*1-618-755-11	PC BOARD, JACK
904	1-619-360-11	PC BOARD, HEAD CONNECTION
ANT1	1-402-209-11	ANTENNA, FERRITE-ROD (MW)
C1	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C2	1-163-100-00	CERAMIC CHIP 20PF 5% 50V
C3	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C4	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C5	1-163-089-00	CERAMIC CHIP 6PF 0.25PF 50V
C6	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C7	1-163-097-00	CERAMIC CHIP 15PF 5% 50V
C8	1-101-973-00	(US)....CERAMIC 20PF 5% 50V
C9	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C10	1-163-085-00	CERAMIC CHIP 2PF 0.25PF 50V
C11	1-124-465-00	ELECT 0.47MF 20% 50V
C12	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C13	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C14	1-163-809-91	CERAMIC CHIP 0.047MF 10% 25V
C15	1-163-033-00	CERAMIC CHIP 0.022MF 10% 25V
C16	1-163-189-00	CERAMIC CHIP 220PF 5% 50V
C17	1-163-810-00	CERAMIC CHIP 0.03MF 10% 25V
C18	1-124-430-00	ELECT 22MF 20% 4V
C19	1-102-260-00	CERAMIC 5PF 10% 50V
C21	1-163-809-91	CERAMIC CHIP 0.047MF 10% 25V
C22	1-124-430-00	ELECT 22MF 20% 4V
C23	1-124-463-00	ELECT 0.1MF 20% 50V
C24	1-163-809-91	CERAMIC CHIP 0.047MF 10% 25V
C25	1-163-133-00	CERAMIC CHIP 470PF 5% 50V
C26	1-163-809-91	CERAMIC CHIP 0.047MF 10% 25V
C27	1-124-430-00	ELECT 22MF 20% 4V
C28	1-124-435-00	ELECT 10MF 20% 6.3V
C29	1-163-809-91	(US)...CERAMIC CHIP 0.047MF 10% 25V
C30	1-163-809-91	(US)...CERAMIC CHIP 0.047MF 10% 25V
C31	1-124-436-00	ELECT 3.3MF 20% 25V
C32	1-124-436-00	ELECT 3.3MF 20% 25V
C33	1-163-085-00	(US)...CERAMIC CHIP 2PF 0.25PF 50V
C36	1-124-435-00	ELECT 10MF 20% 6.3V
C37	1-163-113-00	CERAMIC CHIP 68PF 5% 50V
C38	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V
C39	1-163-125-00	CERAMIC CHIP 220PF 5% 50V
C40	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V
C101	1-163-137-00	CERAMIC CHIP 680PF 5% 50V
C102	1-163-137-00	CERAMIC CHIP 680PF 5% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C103	1-124-430-00	ELECT 22MF 20% 4V
C104	1-163-016-00	CERAMIC CHIP 0.0039MF 10% 50V
C106	1-163-019-00	(E)...CERAMIC CHIP 0.0068MF 10% 50V
C107	1-163-075-00	(E)...CERAMIC CHIP 0.047MF 10% 25V
C108	1-135-087-21	(E)...TANTAL. CHIP 0.68MF 10% 20V
C109	1-163-017-00	(E)...CERAMIC CHIP 0.0047MF 5% 50V
C110	1-163-074-00	(E)...CERAMIC CHIP 0.033MF 5% 25V
C111	1-135-103-00	TANTAL. CHIP 3.3MF 20% 4V
C112	1-135-103-00	TANTAL. CHIP 3.3MF 20% 4V
C113	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V
C114	1-163-077-00	CERAMIC CHIP 0.1MF 50V
C115	1-124-434-00	ELECT 220MF 20% 4V
C201	1-163-137-00	CERAMIC CHIP 680PF 5% 50V
C202	1-163-137-00	CERAMIC CHIP 680PF 5% 50V
C203	1-124-430-00	ELECT 22MF 20% 4V
C204	1-163-016-00	CERAMIC CHIP 0.0039MF 10% 50V
C206	1-163-019-00	(E)...CERAMIC CHIP 0.0068MF 10% 50V
C207	1-163-075-00	(E)...CERAMIC CHIP 0.047MF 10% 25V
C208	1-135-087-21	(E)...TANTAL. CHIP 0.68MF 10% 20V
C209	1-163-017-00	(E)...CERAMIC CHIP 0.0047MF 5% 50V
C210	1-163-074-00	(E)...CERAMIC CHIP 0.033MF 5% 25V
C211	1-135-103-00	TANTAL. CHIP 3.3MF 20% 4V
C212	1-135-103-00	TANTAL. CHIP 3.3MF 20% 4V
C213	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V
C214	1-163-077-00	CERAMIC CHIP 0.1MF 50V
C215	1-124-434-00	ELECT 220MF 20% 4V
C301	1-124-434-00	ELECT 220MF 20% 4V
C302	1-124-436-00	ELECT 3.3MF 20% 25V
C303	1-124-432-00	ELECT 47MF 20% 4V
C304	1-163-038-00	(E)...CERAMIC CHIP 0.1MF Z% 50V
C305	1-124-434-00	ELECT 220MF 20% 4V
C307	1-124-430-00	ELECT 22MF 20% 4V
C308	1-124-434-00	ELECT 220MF 20% 4V
C309	1-163-809-91	CERAMIC CHIP 0.047MF 10% 25V
C310	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C311	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C312	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C314	1-124-434-00	ELECT 220MF 20% 4V
C315	1-124-431-00	ELECT 33MF 20% 4V
C316	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C317	1-135-099-00	TANTAL. CHIP 2.2MF 20% 6.3V
C318	1-131-375-00	TANTALUM 4.7MF 10% 6.3V
C319	1-135-099-00	TANTAL. CHIP 2.2MF 20% 6.3V
C320	1-131-375-00	TANTALUM 4.7MF 10% 6.3V
C321	1-131-388-00	TANTALUM 68MF 10% 6.3V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C322	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C323	1-124-435-00	ELECT	10MF	20%	6.3V
C324	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C325	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C326	1-163-117-00	(E)...CERAMIC CHIP	100PF	5%	50V
C327	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C328	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C329	1-163-117-00	(E)...CERAMIC CHIP	100PF	5%	50V
C330	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C331	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C601	1-124-436-00	ELECT	3.3MF	20%	25V
C602	1-124-435-00	ELECT	10MF	20%	6.3V
C603	1-131-345-00	TANTALUM	0.47MF	10%	35V
CF1	1-527-879-00	FILTER, CERAMIC			
CF2	1-527-879-00	FILTER, CERAMIC			
CF3	1-567-177-00	FILTER, CERAMIC			
CN301	1-563-264-11	JACK, OUTER POWER			
CV1	1-151-528-11	CAP, VAR, POLYETHYLENE			
D1	8-719-101-23	DIODE 1SS123			
D301	8-719-912-43	DIODE SLP178B			
FL1	1-235-171-00	FILTER, BAND PASS			
HP901	8-825-537-51	HEAD, PLAYBACK PP238-3604D			
IC2	8-759-206-38	IC TA7358FN			
IC3	8-759-207-22	IC TA8110F			
IC4	8-759-206-91	IC TA7370F			
IC301	8-759-909-64	IC BA3404F			
IC303	8-759-802-75	IC LA4533M			
IC304	8-759-910-71	IC BA5208AF			
IC601	8-759-400-12	IC AN6612S			
J301	1-507-924-11	JACK			
JR2	1-215-295-00	(E)....METAL CHIP	0	5%	1/10W
JR3	1-216-296-00	(E)....METAL CHIP	0	5%	1/10W
JR301	1-216-295-00	(US)...METAL CHIP	0	5%	1/10W
JR302	1-216-295-00	(US)...METAL CHIP	0	5%	1/10W
L1	1-459-666-11	COIL (WITH CORE)			
L2	1-459-667-11	COIL (WITH CORE)			
L3	1-410-030-11	MICRO INDUCTOR 56UH			
L101	1-410-013-11	MICRO INDUCTOR 2.2UH			
L201	1-410-013-11	MICRO INDUCTOR 2.2UH			
L301	1-410-013-11	MICRO INDUCTOR 2.2UH			
L302	1-421-665-11	COIL			
M901	8-835-188-01	MOTOR, DC KFN-26DA3FX			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q1	8-729-801-08	TRANSISTOR 2SC2813Q4			
Q3	8-729-601-58	TRANSISTOR 2SC2053C			
Q5	8-729-902-93	TRANSISTOR FMG4			
Q301	8-729-100-76	TRANSISTOR 2SA812			
Q601	8-729-400-16	TRANSISTOR 2SB956-S			
R1	1-216-011-00	METAL CHIP	27	5%	1/10W
R2	1-216-158-00	METAL CHIP	22	5%	1/8W
R3	1-216-073-00	METAL CHIP	10K	5%	1/10W
R4	1-216-073-00	METAL CHIP	10K	5%	1/10W
R5	1-216-099-00	METAL CHIP	120K	5%	1/10W
R6	1-216-099-00	METAL CHIP	120K	5%	1/10W
R7	1-216-049-00	METAL CHIP	1K	5%	1/10W
R8	1-216-043-00	METAL CHIP	560	5%	1/10W
R9	1-216-097-00	METAL CHIP	100K	5%	1/10W
R10	1-216-037-00	METAL CHIP	330	5%	1/10W
R11	1-216-049-00	METAL CHIP	1K	5%	1/10W
R12	1-216-049-00	METAL CHIP	1K	5%	1/10W
R13	1-216-081-00	METAL CHIP	22K	5%	1/10W
R14	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R16	1-216-075-00	METAL CHIP	12K	5%	1/10W
R17	1-216-081-00	METAL CHIP	22K	5%	1/10W
R18	1-216-009-00	METAL CHIP	22	5%	1/10W
R21	1-216-032-00	METAL CHIP	200	5%	1/10W
R22	1-216-032-00	METAL CHIP	200	5%	1/10W
R23	1-216-009-00	METAL CHIP	22	5%	1/10W
R24	1-216-009-00	METAL CHIP	22	5%	1/10W
R101	1-216-085-00	METAL CHIP	33K	5%	1/10W
R102	1-216-117-00	METAL CHIP	680K	5%	1/10W
R103	1-216-089-00	METAL CHIP	47K	5%	1/10W
R104	1-216-101-00	METAL CHIP	150K	5%	1/10W
R105	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R106	1-216-112-00	METAL CHIP	430K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-089-00	METAL CHIP	47K	5%	1/10W
R109	1-216-065-00	(E)....METAL CHIP	4.7K	5%	1/10W
R109	1-216-057-00	(US)...METAL CHIP	2.2K	5%	1/10W
R110	1-216-049-00	METAL CHIP	1K	5%	1/10W
R111	1-216-142-00	METAL CHIP	4.7	5%	1/8W
R112	1-216-003-11	METAL CHIP	12	5%	1/10W
R113	1-216-089-00	METAL CHIP	47K	5%	1/10W
R114	1-216-043-00	(US)...METAL CHIP	560	5%	1/10W
R201	1-216-085-00	METAL CHIP	33K	5%	1/10W
R202	1-216-117-00	METAL CHIP	680K	5%	1/10W
R203	1-216-089-00	METAL CHIP	47K	5%	1/10W
R204	1-216-101-00	METAL CHIP	150K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R205	1-216-071-00	METAL CHIP 8.2K 5% 1/10W
R206	1-216-112-00	METAL CHIP 430K 5% 1/10W
R207	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R208	1-216-089-00	METAL CHIP 47K 5% 1/10W
R209	1-216-065-00	(E)....METAL CHIP 4.7K 5% 1/10W
R209	1-216-057-00	(US)...METAL CHIP 2.2K 5% 1/10W
R210	1-216-049-00	METAL CHIP 1K 5% 1/10W
R211	1-216-142-00	METAL CHIP 4.7 5% 1/8W
R212	1-216-003-11	METAL CHIP 12 5% 1/10W
R213	1-216-089-00	METAL CHIP 47K 5% 1/10W
R214	1-216-043-00	(US)...METAL CHIP 560 5% 1/10W
R301	1-216-017-00	METAL CHIP 47 5% 1/10W
R302	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R303	1-216-005-00	METAL CHIP 15 5% 1/10W
R304	1-216-073-00	METAL CHIP 10K 5% 1/10W
R305	1-216-081-00	METAL CHIP 22K 5% 1/10W
R306	1-216-043-00	METAL CHIP 560 5% 1/10W
R307	1-216-043-00	METAL CHIP 560 5% 1/10W
R308	1-216-043-00	METAL CHIP 560 5% 1/10W
R309	1-216-032-00	METAL CHIP 200 5% 1/10W
R310	1-216-051-00	METAL CHIP 1.2K 5% 1/10W
R601	1-216-142-00	METAL CHIP 4.7 5% 1/8W
R602	1-216-049-00	METAL CHIP 1K 5% 1/10W
R603	1-216-068-00	METAL CHIP 6.2K 5% 1/10W
RV1	1-230-990-11	RES, ADJ, METAL GLAZE 10K
RV101	1-237-299-11	(E)...RES, ADJ, METAL GLAZE 2.2K
RV201	1-237-299-11	(E)...RES, ADJ, METAL GLAZE 2.2K
RV301	1-230-593-11	RES, VAR, CARBON 10K/10K
RV601	1-230-989-11	RES, ADJ, METAL GLAZE 4.7K
S1	1-570-640-11	SWITCH, SLIDE (BAND)
S301	1-570-639-11	SWITCH, SLIDE (FUNCTION)
S302	1-570-639-11	SWITCH, SLIDE (TAPE SELECT)
S303	1-570-639-11	SWITCH, SLIDE(DOLBY NR/FM SENS/FM MODE)
S304	1-570-397-11	SWITCH, SLIDE (SPEAKER)
S305	1-570-641-11	SWITCH, LEAF (DIRECTION)
S601	1-570-642-11	SWITCH, LEAF (TAPE)
SP301	1-503-283-21	SPEAKER, DYNAMIC
T1	1-404-673-11	TRANSFORMER, IF (FM MIX)
T2	1-404-670-11	TRANSFORMER, IF (AM MIX)
T3	1-404-675-11	TRANSFORMER, IF (FM DET)
T4	1-406-198-11	COIL (AM OSC)
TH601	1-806-800-11	THERMISTOR (POSITIVE)
TH602	1-806-363-11	THERMISTOR (POSITIVE)

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-335-756-01	CUSHION (B)
3-335-760-01	CUSHION (A)
3-335-824-01	LABEL, MODEL NUMBER (U)
3-335-831-01	(E)....INDIVIDUAL CARTON
3-335-832-01	(US)...INDIVIDUAL CARTON
3-527-213-00	LABEL, SERIAL NUMBER
3-764-193-11	(E)...INSTRUCTION
3-701-613-01	(E)....BAG, POLYETHYLENE
3-701-625-00	(US)...BAG, POLYETHYLENE
3-704-082-01	(E)...LABEL (WHITE), DISCRIMINATION
3-704-086-01	(E)...LABEL (BLACK), GENERAL DISCERN
3-765-266-21	(US)...MANUAL, INSTRUCTION
3-765-266-41	(E)....MANUAL, INSTRUCTION
3-795-748-21	(US)...SAFETY INSTRUCTIONS, HEADPHONE
8-952-236-91	(E:WHITE)...HEADPHONE MDR-E212/J (W) SET
8-952-266-94	(US).....HEADPHONE MDR-A10L/B SET
8-952-302-90	(E:BLACK)...HEADPHONE MDR-E212/K (B) SET
X-3334-010-1	CASE ASSY, CARRYING

9-952-293-11

Sony Corporation

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